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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/403,543	10/25/1999	TATSUYA SHIMODA	104270	7425

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EXAMINER
FOONG, SUK SAN

ART UNIT	PAPER NUMBER
2823	

DATE MAILED: 04/24/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/403,543	Applicant(s) SHIMODA ET AL.	
	Examiner Suk-San Foong	Art Unit 2823	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☒ Claim(s) 2, 3, 14,and 18-21 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Objections

1. Claim 2 is objected to because of the following informalities: in line 1, it appears that "The" should be replaced by--A--. Appropriate correction is required.

2. Claim 3 is objected to because of the following informalities: in line 5, it appears that "and" should be replaced by--or--. Appropriate correction is required.

3. Claim 14 is objected to under 37 CFR 1.75 as being a substantial duplicate of claim 15. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

4. Claims 18, 19, and 20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The steps recited in claims 18-20 are inherent because different structures are formed which are of different sizes.

5. Claim 21 is objected to under 37 CFR 1.75 as being a substantial duplicate of claims 1 and 3. When two claims in an application are duplicates or else are so close in content that they

both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 3, 12, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 3, line 5, it is questioned which layer is employed through the use of the term "interface".

9. Claim 15, line 5, it is questioned what is recited through the use of the term "one memory".

Claim Rejections - 35 USC § 101

10. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

11. Claim 17 is rejected under 35 U.S.C. 101 because they improperly embrace or overlap two different statutory classes of invention, namely, method of making a device and process of using the device, which statutory classes are set forth only in the alternative in 35 U.S.C. 101. See MPEP 2173.05(p). The claim is drawn to both making a logic circuit device and using the logic circuit device to drive memory cell array. The claim should recite capabilities of the element provided as opposed to active process steps if a method of making a device is intended.

Also, claim 17 is rejected under 35 U.S.C. 112, second paragraph, because they are directed to both a method of making a device and a process of using an apparatus. As a result, the scope of the claims cannot be determined. See Ex parte Lyell 17 USPQ2d 1548 (8/16/1990).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayashi ('585) in combination with Vu et al. ('124).

Hayashi discloses the method of forming three-dimensional devices with multiple layers of semiconductor devices formed on substrate which includes bonding a thin film device 16 with connection electrode 13 to substrate 15 through adhesive layer 14 (Fig. 1E), preparing another a thin film device 22 over substrate 21 with connection electrode 13 (Fig. 2A and Col. 4, lines 6-9), then stacking both structures of thin film devices 16 and 22 as shown in Fig. 2B (Col. 4, lines 14-24), subsequently bonding both device layers (Fig. 2C and Col. 4, lines 25-35), and then removing substrate 15 and adhesive layer 14 (Fig. 2D),

Vu et al. teach the method of forming active matrix LCD using thin film transfer process which includes forming thin film device 140 to substrate 80 attached through epoxy layer 82 (Fig. 5A and Col. 6, lines 8-14), bonding thin film device 140 to another substrate 110 (Fig. 5B), and removing epoxy layer 82 using UV radiation thereby removing substrate 80 (Fig. 5D).

Hayashi does not teach removing adhesive layer 14 through irradiation.

It would have been within the scope to one ordinary skill in the art to combine both teachings to employ the adhesive epoxy layer and the removal process of Vu et al. with the step of Hayashi to form adhesive layer 14 and subsequently removing adhesive layer 14 and substrate 15 to enable the formation of multiple layers of thin film devices.

The recited process in claim 5 is inherent in UV process.

Examiner takes Official Notice that laser ablation to remove materials was known.

In regard to claim 6, it would have been within the scope to one ordinary skill in the art to combine the use of the known process with the process of Hayashi to enable the removal of separable layer of Hayashi to be performed.

Examiner takes Official Notice that anisotropic conductive film to join two adjacent thin film device layers to obtain electrical connection was known prior to applicant's invention.

In regard to claim 10, it would have been obvious at the time of applicant's invention to combine the use of the known process with the process with the process of Hayashi to enable the steps of providing anisotropic conductive film to obtain electrical connection.

Examiner takes Official Notice that separate light-emitting and light-receiving layers to form light emissive devices was known prior to applicant's invention.

In regard to claim 11, it would have been obvious at the time of applicant's invention to combine the use of the known process with the process of Hayashi to enable the step of forming an optical three-dimensional semiconductor device.

In regard to claim 12, it appears that the process of claim 1 could be performed equally well by forming the thin film device layers concurrently or non-contemporaneously. In the step of claim 12 does not solve any problems or provide any advantages. Alternatively, it would have been within the scope to one ordinary skill in the art to form the thin film device layers simultaneously because it would take less time or reduce complexity and the same product would result in both cases; mainly to thin film device layers.

Examiner takes Official Notice that memory cell arrays and logic circuits to form semiconductor devices such as active matrix LCD were known prior to applicant's invention.

In regard to claims 16 and 17, it would have been obvious at the time of applicant's invention to combine the use of the known step with the process of Hayashi to enable the step of forming three-dimensional device with logic circuit and memory cell array to be performed.

Conclusion

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Suk-San Foong whose telephone number is 703-305-0383. The examiner can normally be reached on Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 703-308-4918. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 (7724, 3431, 3432).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

SF
April 22, 2002

George Fourson
Primary Examiner
Art Unit 2823